Harnessing Agricultural Crop Residue for Enhancing Handicraft Skills of Women Living in Agra District

A

Synopsis

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1.0 INTRODUCTION

India is an agricultural based country. Farmers grow different types of crops in different seasons. They get different residues from different crops. Traditionally farmers used those crop residues as food for animals. In rural areas, people used those different crop residues in making handicraft products for different use. Today, farmer burns the left residue to clean their field. By this, they grow next crop earlier. It produces smoke pollution and release harmful gases. It directly impacts on organism's health. In fact, the interest of making handicraft products using crop residue is going to be decreased continuously. As handicraft is a tradition of India, so it is important to renovate this tradition by using different ideas and represent this as a tradition in a new manner.

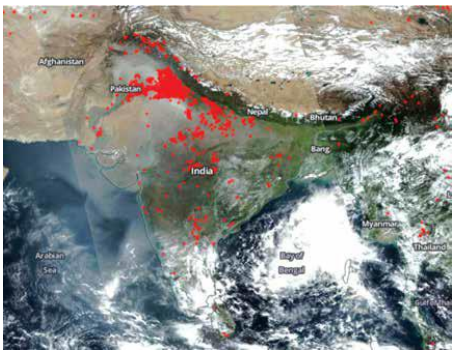
1.1 Crop residue

Food is the basic need of creature and agriculture is the major way to get food. When the production of crop is high then the residue is also increased. According to Yadav et al. (2017), "Crop residue term is used for the biomass produced as by-products from harvesting and processing of agricultural crops. Harvesting and processing of agricultural crops remaining part refer to crop residue."

More than 65% economic sector of India is based on farming. It is one of the key producers of food grain, oilseed, sugarcane and other agricultural products. Approximately 500-550 million tonnes (Mt) of crop residue is generated on-farm and off-farm annually from its production of 110 Mt of wheat, 122 Mt of rice, 71Mt of maize, 26 Mt of millets, 141 Mt of sugarcane, 8 Mt of fibre crops (jutemesta, cotton) and 28 Mt of pulses (Devi et al. 2017).

Farmers use these different residues for different purpose but most of the farmers have lack of vision to use these residues and this is the reason of burning fields. The problem of crop residue burning has been intensifying over time and spreading across the Indian Sub-continent. NAAS (2017) reported that the NASA satellite images of early November depicts the burning hot spots in the peak period of rice residue burning across south Asia and shows that the intensity of rice residue burning in Punjab,

Haryana, western Uttar Pradesh and Uttarakhand is very high, resulting in deterioration of air quality in vast geographical area.



(Fig1.1 *Source*: NAAS, 2017: NASA satellite images (November 03, 2016) showing intensity of rice residue burning (shown in red dots) in North-West India.)

1.1.1 Types of crop residue

There are two types of Agricultural crop residue.

1. Field residue 2. Process residue

1. Field residue- Field residues are materials left in an agricultural field after the crop has been harvested. These residues include stalks (stems/ straw), leaves and seed pods. The residue can be ploughed directly into the ground or burned first.

2. Process residue- Process residues are materials left after the crop is processed into a usable resource. These residues include husks, seeds, bagasse and roots. They can be used as animal fodder and soil amendment, fertilizers and in manufacturing.

1.2 Burning of crop residue

As the crops give high profit to the nation but the residue is produced by these crops are burnt, it is very harmful. Burning of the crop residue produces environment problems. It releases harmful gases in large quantity. A report of NAAS (2017) estimated that, "one ton rice residue on burning releases 13 kg particulate matter, 60 kg CO, 1460 kg CO_2, 3.5 kg NOx, 0.2 kg SO_2. The black carbon emitted during residue burning warms the lower atmosphere and it is the second most important contributor to global warming after CO_2."

It is important to use the crop residue in making useful eco-friendly products like handicrafts (baskets, bowls, cups etc.), processing of by- products and ploughing in the field as organic matter. Here are some uses of different agriculture crop residue which are using in India –

- ✓ **Wheat residue**- Straw is residue product of wheat which is used in different work. Most of the farmers store them for animal's feed and sell it. But some farmers don't know the use of wheat straw. So they burn them. Many useful and decorative products can be made by these straws for example baskets, carpets etc. Rural women can use it as an enterprise.
- ✓ **Paddy residue**- Despite such huge amounts of rice straw generation, farmers in the country are yet to realize the potential of this agro- waste in terms of useful agriculture end-product and as a profitable raw material for various industries. Rice straw can be used as a fodder, making a large variety of handicraft products for daily use, chopped can be used as a cattle feed. (Verma, 2014).
- ✓ **Maize residue**- After harvesting the left parts of maize are leaves, husk, chaff, stalks. All these residues are bio product and can be disposed directly into the soil or into a composting system at the end of their lifetime. Husk of maize can be used to make decorative and useful products like different types of dolls, useful baskets, mats etc.

1.3 Handicraft making skills

According to a report of NCDPD (2016), "India has a long tradition of craftsmanship's and it manifests in our culture, tradition and lifestyle. Handicraft sector has played a significant and important role in our country's economy not only in providing employment to vast segment of crafts persons in rural and semi urban areas but also in terms of generating substantial foreign exchange for the country besides preserving our cultural heritage." Handicraft market gives opportunity for development of human being. India is one of the important suppliers of handicrafts to the world market.

Handicraft products are those which do not harm the environment. These products are produced by hands or with help of some kind of tools. In a layman language, as soon as the word 'handicraft' comes, it is the skill that is solely an individuals' own work giving it more value not in terms of the amount of energy, mental strength and use of hands (Singh & Fatima, 2015). The products which made by hands can be utilitarian, aesthetic, artistic, creative, culturally attached, decorative, functional, traditional, religiously and socially symbolic and significant. Handicraft is such that although the item might be

same in appearance but since produced in a different region from different hands differ in style, colour, combination and craftsmanship.

Many types of handicrafts are involved in rural areas of India. Artisans have skills for different creativity and these skills contribute to the economy. Rural women are also involved in making handicraft products. It is the best way for women to use their skills. Skill development is important part for making handicraft products.

1.4 Condition of handicraft sector in India

Today, India is facing many issues related to handicraft. Chatterjee et al. (2009) indicated that in the absence of the basic amenities including health coverage, skill development schemes and even shelter, craftsmen of rural India discourage their next generation to take up their forefathers' trade. These artisans are from the lowest income strata of rural India. Kumari and Sharma (2017) stated that over the past 30 years, the number of Indian artisans has decreased by

30%, indicating the need to re-invent in artisans to safeguard history, culture and livelihood. Jadhav (2014) described, "The planning commission acknowledges the fact that the unorganized sector that constitutes about 93% of the workforce doesn't have a structured system to support acquiring of skills. Kapur and Mittar (2014) stated that Indian market is unable to understand the importance of handicraft. When this importance is recognized, and if people are willing to pay a higher price for craft based products, this should translate into higher wages for weavers and craftspeople and act as a boost to millions of rural based livelihood opportunities associated

with this sector.

1.5 Skill Development

Skill development acts as an instrument to improve the overall effectiveness and empowers an individual to work more efficiently. The economy becomes more productive, innovative and competitive through the existence of more skilled human potential. Countries with higher and better levels of skills adjust more effectively to the challenges and opportunities of globalization (Punjani, 2015).

Furtado (2018) stated, “Skill could be referred to as the inner quality of work possessed by a person, either in order to complete a task effectively and efficiently or also the very aspect that sets one different from others for with outputs in having better quality of work and achieving quantitative results.” Skills and knowledge are key drivers of macro-economic growth and socioeconomic stability. Skill development has emerged as national priority for which a number of measures have been taken and in process for future.

1.6 Participation of women in economic field

Women constitute the backbone of any nation. Success of the nation is depending upon the success of its women. But few years ago, women in India were considered as the home makers whose responsibilities were restricted to only cooking and taking up other household chores. Gupta (2016) highlighted that after the beginning of a Quite Revolution in 1970; women leave the home and enter the workforce in droves. Since the turn of the century, the status of women in India has been changing due to growing industrialization, globalization, and social legislation. Vyas (2018) estimated that in India, women are now participating in various areas like – education, art and culture, service sector, sports, politics, media, and science and technology. They form a substantial part of the workforce but the working percentage rate of women in the total labor force is declining.

MSME is the govt. policies which help people to enterprise. According to the annual report of MSME’s (2017) as a whole, 79.63% male and 20.37% female owned of enterprises. Female get lesser support than male.

India has 6.40 lac villages and its 68.84% (2011-Census) of the population is living in rural areas. Since female population is 48.25% of the total population, the major chunk of it is living in rural areas. The majority of rural women are from the category of living below the poverty line. So rural poverty means rural poor women hence there is feminization of poverty. This rural segment is the biggest segment and the backbone of Indian Economy. The rural women always remain the center of rural development in terms of alleviation of rural poverty and rural empowerment (Pangannavar, 2015).

Conclusion:

As per details, handicraft is an identification mark of India. It is important to make this identification as well. But as per today's condition, handicraft is going to be lost. This is the time to apply some remedial ideas to restart it again. Crop residue is eco-friendly material but when it burns, it causes of pollution. The smoke from burning residue effect on health badly.

Thus, the present study is planned to use crop residue in making handicraft products. Interested women can enhance their skills in making products. It will help them economically also. They will get knowledge about the importance of handicraft products. These products are eco-friendly that do not harm environment.

2.0 REVIEW OF LITERATURE

There are many studies which told about the harm by burning of crop residues. Some studies told about the traditional use of crop residue like: making hand products. Rural women used this technique but today it needs some innovative idea to restart.

Table 2.1: Details of Review Literature

Studies based on	S. No.	Year	Name of the Researcher	Title	Results
1. Impact of burning crop residue	1	2018	NAFCC project	Climate resilience building among farmers through crop residue management	Burning of crop residue impacts on human's health especially for those people who suffering from respiratory disease, cardiovascular disease. Pregnant women and small children are also likely to suffer from the smoke produced due to stubble burning. Agricultural crop residue burning contribute towards the emission of greenhouse gases (CO2, N2O, CH4), air pollutants (CO, NH3, NOx, SO2, NMHC, volatile organic compounds), particulates matter and smoke having direct influence on global warming.
	2.	2017	Yadav et al.	Crop Residue Burning and Air Pollution	Crop residue burning is a big issue at present time, especially during a time of wheat and rice harvesting. There is no doubt that smoke from burning crop residues affects people's

					health, road safety and the environment. It affects soil and destroys the physical, chemical and biological properties.
	3.	2017	Devi et al.	Crop residue recycling for economic and Environmental Sustainability : The case of India	A large amount of residue is not being economically exploited and treated as waste. Imposing a ban on burning of crop residue may not be fruitful unless growers are enlightened with the negative effects of it on human, animal and soil health, crop biodiversity, the micro- and macro-environment, etc. To disseminate the knowledge of usefulness of crop residue, extension education is encouraged among growers and producers.
2. Reasons of burning crop residue	4.	2017	Yadav et al.	Crop Residue Burning and Air Pollution	Farmers burn their field because of less time gap between crop harvesting. There are other reasons of crop residue burning like save time, less labor cost, slow decomposition, to decrease the microbes.
3. Use of crop residue in handicraft making product	5.	2017	Rani and Brar	Traditional handicrafts of Punjab developed from plant and agro-waste materials	A study had done in Ludhiana, Patiala and Bathinda and found that The women possessing the skill of making various traditional handicrafts from plant materials are no longer practicing this craft. It is imperative to make efforts for revival of these beautiful eco-friendly handicrafts from plant and agro-waste materials.
	6.	2014	Tripathi et al.	Traditional artifacts from Bena grass [Chysopogon zizanioodes (L.) Roberty] (Poaceae) in Jajpur district of Odisha, India	This study focused on traditional knowledge and workmanship of Bena artisans in making unique artifacts in rural pockets of Jajpur district of Odisha. But under the changing scenario it is becoming a dying craft which warrants some urgent remedial measures including protection of the habitat, modern training to the artisans, marketing and sponsorship, etc. to save it for posterity.
4. Condition of women in economic field	7.	2018	Jain	Women entrepreneurship in India	This paper focused on the position of the women in 21st century. Women involved in each and every sector. But, as per 6th economic census, few women constitute of total entrepreneurs. There are many governmental and non-governmental policies to support women, but there are still some requirements for developing women entrepreneur in India.
5. Need of skill develop	8.	2016	Gupta	Study of women	Government has started skill training programmes to increase the productivity of workforce. But it is important to focus on

ment for rural women				empowerment through Skill development & vocational education in India	some points for making these programmes successful. It demands action in the form of policy change, and local level initiatives and building of institutes that are sensitive to the needs and work conditions experienced by women and men separately.
	9.	2015	Kanchan & Varshney	Skill development initiatives and strategies	People of India can make their skills marketable with various skill development initiatives. It can make India the global hub for skilled manpower, and also result in a surplus of skilled manpower of approximately 47 million 2020 (FICCI). Prime Minister in his maiden speech said, "Skill development should be accompanied by a spirit of '*Shram-ev-Jayate*' – giving dignity to labour."
6. Problems in handicraft sector	10.	2017	Mohi ud din	Handicraft entrepreneurship: Tool for economic development in Rural economy	Handicraft sector is unorganized and lack of entrepreneurship. There is a strong need of entrepreneurship to organize this sector. Produced products should be economical and much attractive in nature.

3.0 AN OVERVIEW OF PROPOSED RESEARCH

3.1 Need for the study

Government took many steps to develop the condition of women economical and socially but still women are not receiving profits in many areas. They need some support and guidance and this study will help them to identify their skills. It is based on the skills to make products by agricultural crop residue.

Bhat & Yadav (2016) stated, "The sector of handicraft is not only providing employment for the development of economy but it also acts as a sensible artistic approach of self-expression for the artisans. Handicrafts are matchless expressions as they represent culture, tradition, and heritage of a country." It is important to appreciate the culture of nation. Many more countrymen should involve in this field for the growth of handicraft sector. This study will help to appreciate the handicrafts and support the culture.

Kanchan &Varshney (2015) and **Singh & Fatima (2015)** indicated that in India, there is limited scope to develop the skills of women in rural areas due to social, economic and cultural constraints. Socio-economic empowerment of rural women can be attained by investing in their skill development. There is a great opportunity for economic growth. This study will help to raise confidence and give direction their lives by their proper skills. Skill development is a powerful tool to empower individuals and improve their social acceptance.

Kapur & Mittar (2014) stated that the handicraft culture has disappeared in present time. It is important to revive this culture by understanding the consumers' needs and market trend. Artisans should use their skills to make attractive products as per market demand. This study will help to enhance skills of women by which they can produce the products as per consumer needs.

Change is very important part of a creature's life. No one likes to use same things for longer time. They want changes regularly. It may support handicraft sector to relive and help to enhance the skills of women.

3.2 Justification for the problem

Crop residue is used for various purposes like as fodder, fuel, compost but many farmers burn their field after harvesting the crop. This process creates harmful smoke pollution. Making handicraft products is one of the methods by which crop residue can be used for earning money.

Singh & Fatima (2015) stated that handicraft art forms have been in tradition since years and the needs are to make them revive, relived in such a way so that they remain alive in many more generations to come.

This study will help to assess about different crop residues which might be used in making different handicraft products and the treatment of crop residue in field. It is important to know that how much the farmers are supportive to use crop residues. It will help to assess the satisfaction and confidence level of interested women regarding their handicraft work. With the help of this study, the demand related to handicraft products in market will be assessed.

This study aims to develop the handicraft skills of women and empower them. The researcher also wants to check the acceptance of those products in market. It will help to revive this tradition. Other

countries are also playing their role towards the eco-friendly basketry products. To achieve these aims, the interested women will be trained for enhancing their skills and making innovative handicraft products with the use of crop residue. It will help to increase interest among women. They can use their free time in right direction. Marketing of those products can support the needy women economically. Sustainability of this program is also important to establish this tradition with an innovative method.

On the basis of the problems, the title of this study is: .

"Harnessing Agricultural Crop Residue for Enhancing Handicraft Skills of Women Living in Agra District"

3.3 Objectives of the study

- To assess the availability of agricultural crop residue material according to the season.
- To impart skills related to development of handicraft using agricultural crop residue to interested women.
- To produce products according to the market demand and assess the market acceptability of produced handicraft items.
- To evaluate the impact of intervention on women.

3.4 Hypothesis

H_a1: There is positive relation between knowledge related handicrafts and socio economic status.

H_01: There is no relation between knowledge related handicrafts and socio economic status.

3.5 Operational definitions

- **Skill enhancement**- Skill enhancement uses a combination of cognitive and behaviour problem solving approaches, both of which are used to strengthen a person's positive skill development. Through skill training a person can improve their overall performance in any

identified area.

For present study, women will get help to enhance their skills for making handicraft products.

- **Agricultural crop residue**- It is the plant material remaining after harvesting leaves, stalks, roots etc. (The Organization for Economic Co-operation and Development, 2007)

  For present study, some types of crop residue will be used in making handicraft product.

- **Craft**- It is a type of work where useful and decorative devices are made by hands or by using simple tools. (Singh & Fatima, 2015)

  For present study, craft work will be done to enhance the skills of women.

- **Socioeconomic status-** It is a measure of an individual's or family's economic and social position, based on various variables responsible for that like income, education, occupation, family effluence, physical assets, social position, social participation, caste, etc. (Ankitha et al. 2016)

  For present study, the variables income, education and occupation will be used to measure socio-economic status for selecting women.

- **Training**- Training has specific goals of improving one's knowledge, skills and their capacity, capability, performance and their productivity. (Ganesh & Indradevi, 2015)

  For present study, training will be provided to women for improving their skills.

- **Sustainability**- Practices that preserve the balance between present and future human needs and the environment.

  For the present study, sustainability of training will be checked.

3.6 Variables

3.6.1. Independent variables:

I. Skills of women

II. Interest of women

III. Crop residue

3.6.2 Dependent variables:

I. Economic status

II. Utilization of products made by crop residue

3.7 Methodology

3.7.1 Research Design

The present study is participatory action research. The purpose of this study is to empower the women economically. This study will provide skill based training to women who are living in low socio economic condition.

3.7.2 Locale of the study

Agra district will be selected conveniently.

3.7.3 Selection of sample:

This present study will be conducted in 3 different areas. Women will be selected from these areas. Door to door survey method will be used to select women. Steps will be used as shown in following figure:

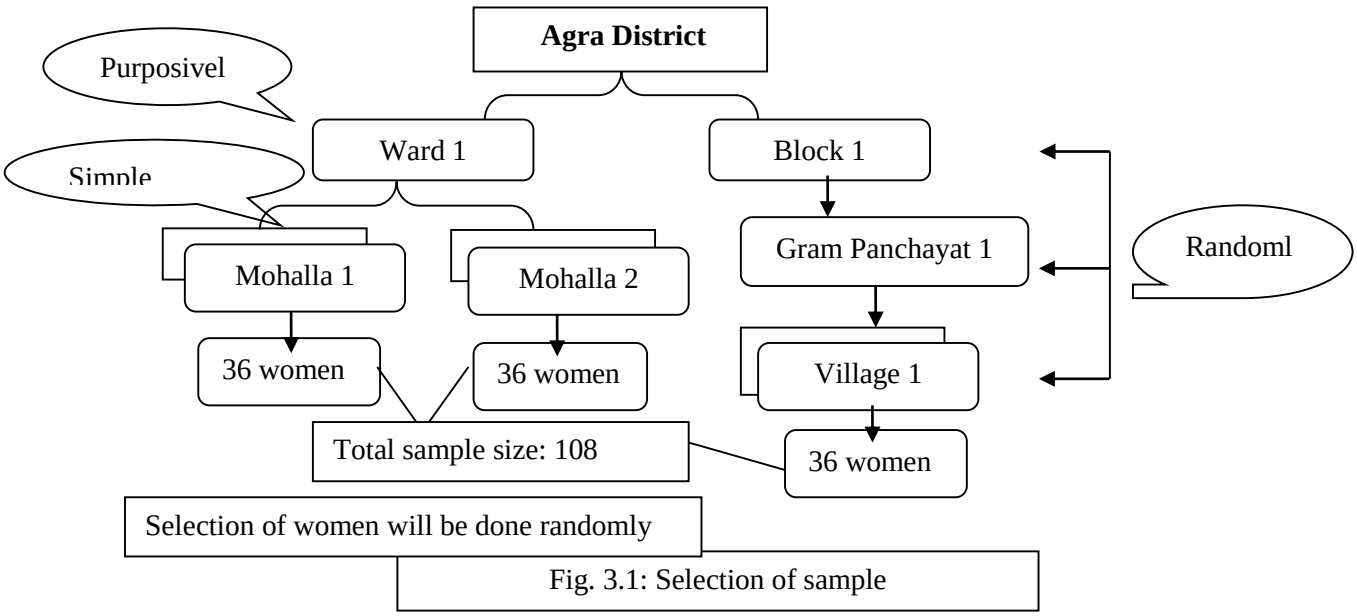


Fig. 3.1: Selection of sample

One ward will be selected purposively from Agra. Two Mohallas will be selected from that ward by using simple random method. The interested and low socioeconomic status based women will be selected from the selected Mohallas. 36- 36 women will be selected from each Mohalla.

Multistage random method will be used to select village. First, one Block will be selected from Agra district. One Gram Panchayat from that block will be selected. Then, one village will be selected from

that Gram Panchayat. If Gram Panchayat have two or more villages then lottery method will be used to select one village. 36 women will be selected from that village.

3.7.4 Sample size

Total 108 women will be selected for intervention.

3.7.5 Criteria for sample selection

- Women between 18 to 50 years will be selected for the study.
- Unmarried and married women will be included in study.
- Low socio-economic status based women will be selected.

3.7.6 Tools preparation:

Tools will be used in the process of present study.

Schedule	Technique	Preparation	Nature of information
1. Raw material identification	Interview	Self-prepared	▪ Cropping pattern ▪ Availability & accessibility of crop residue ▪ Present scenario of utilization of crop residue by farmers
2. Market scanning	Survey	Self-prepared	▪ Present marketing of handicraft products ▪ Consumer behaviour for handicraft products.
3. Identification of skills	Interview	Self-prepared	▪ Socio-economic & demographic status ▪ Basic skills regarding hand work ▪ Learning ability and interest ▪ Time availability
4. Evaluation schedule	Observation/ Interview	Self-prepared	▪ Change in skills ▪ Present scenario of utilization of handicraft products ▪ Satisfaction regarding their work ▪ Confidence level of women related to their work ▪ Sale of products and profit

Table 3.1: Details of schedules

3.7.7 Data Collection:

Data will be collected with the following methods:

1. **Raw Material Identification:** This schedule will be used to assess the cropping pattern. There will be two section in this schedule. One section will be covered by questions which have 3 to

4 choices that will measure by rating. Positive responses will get higher scores and negative responses will get lower scores. Another section will be covered by three points rating scale. Different information will be collected. Like: Types of crops, size of field, production of crops in quantity, availability and accessibility of crop residue, farmers' attitude regarding environment, residue and handicraft products.

2. **Market Scanning:** Survey about present marketing scenario of handicraft products, different markets for handicraft products, consumers' attitude towards handicraft products like: their preference related to purchasing product is Cost/ Quality/ Design, their choice is handmade items or machine made items. 3 points rating scale will be used to measure this data.
3. **Identification of Skills:** This schedule will be covered in different section. One section will be covered questions related to Socio-economic and demographic profile (age, marital status, occupation, qualification, family income, personal income, size of family, caste etc.), time availability which have 3 to 4 multiple choice options. Higher scoring for positive response and lower scoring for negative responses will be done. Another section will cover interest regarding handicraft work, learning ability, basic skills regarding handicraft work in Yes or No type responses. Positive responses will cover '1' score and negative response will cover '0' score.
4. **Evaluation Schedule:** Information related to changes in skills of women, utilization of handcraft products by learners, satisfaction level of women regarding their handicraft work and generated income, confidence level of women regarding handicraft work, sale of products and profits. 7 points rating scale will be used.

3.8 Procedure of the study

The present study is experimental study. This study will be conducted in three phases.

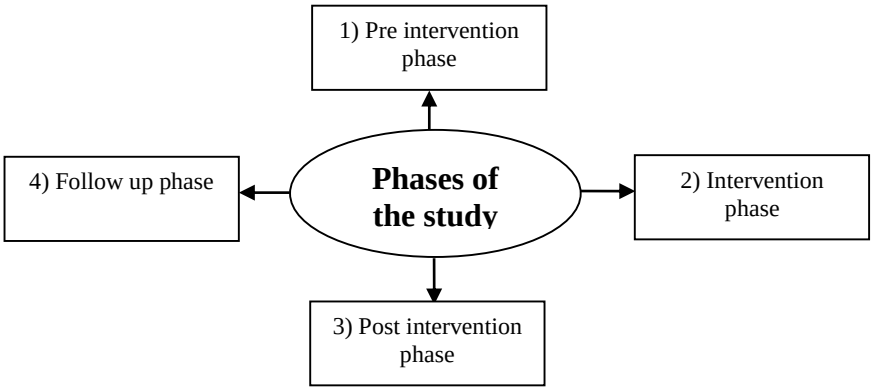


Fig. 3.2: Phases of the study

3.8.1 Pre Intervention Phase

In this phase, the opportunities and requirement will be defined. Like, interest of women related to handicraft making products, availability of resources, demand of market related to handicraft products etc.

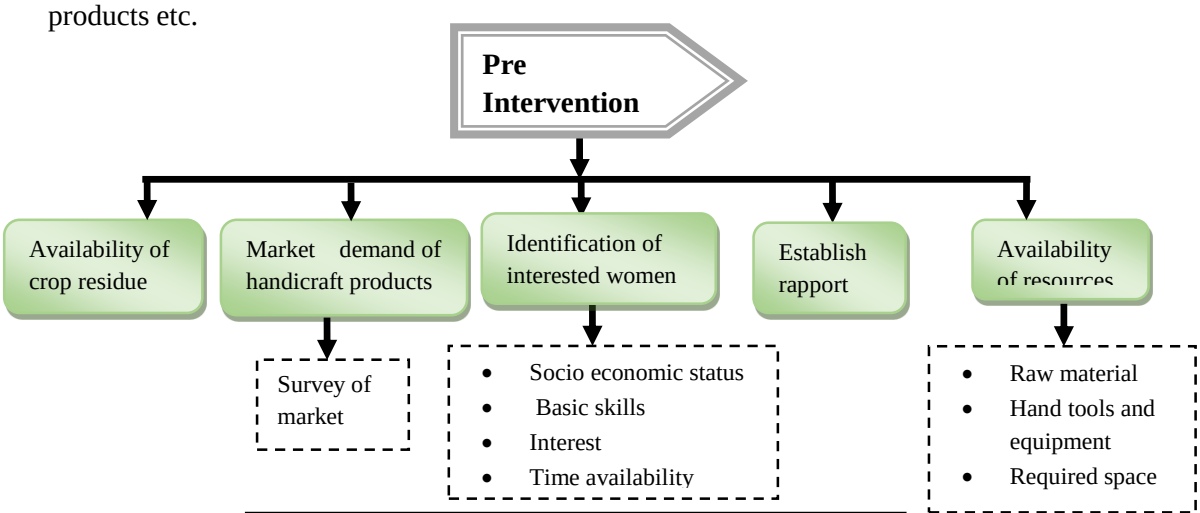


Fig.3.3: Pre intervention phase of the study

Stage 1: Availability of crop residue:

Survey related to crops will be done in different areas. Schedule 1 will be used to know about different crops and availability of crop residue. It will help to know farmers' willingness related to use of crop residue in making handicraft products.

Stage 2: Market demand of handicraft products: Survey of market will be done to know the market demand of handicraft products. Schedule 2 will be used for this survey. It will help to know the consumers' choice and which type of products they prefer most for various uses. It will be easy to design products as per their choice.

Stage 3: Identification of interested women: Interested women will be identified in this phase. Schedule 3 will be used to complete this process.

Stage 4: Establish rapport: After the selection of women, the researcher will establish rapport with them.

Stage 5: Availability of resources: Various resources are required for present study.

- **Step A- Raw material:** Required raw material will be collected from local area, like: fabric, leather etc. It will save time and transportation charges also.
- **Step B- Hand tools and equipment**: Required hand tools and equipment will be arranged to make products.
- **Step C- Space:** Suitable space will be selected for making handicraft products by women.

As the interested women would be selected for making handicraft products in this phase. It is required to enhance the skills of women for making them empowered. The demands for product in market would be checked. It is important to design intervention program to enhance the skills of women and to make products as per market demand.

3.8.2. Intervention Phase

Intervention phase will be started from collection of raw material. In this phase training will be provided to enhance the skills of women. Products will be prepared as per market demand.

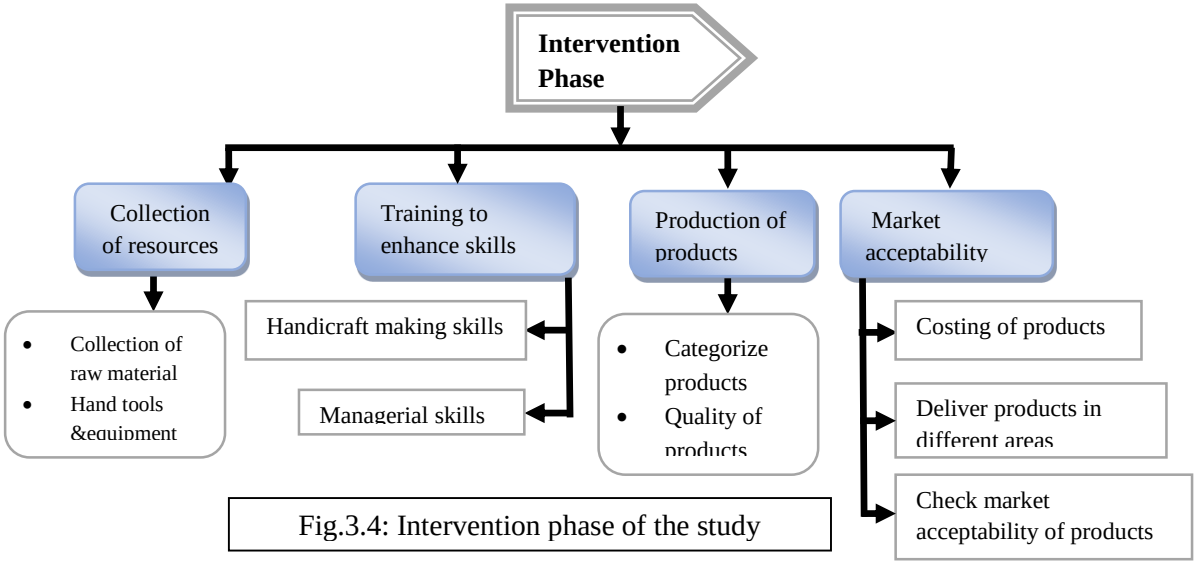


Fig.3.4: Intervention phase of the study

3.8.2.1. Collection of resources:

Crop residue will be collected by which products can be made. Other resources as per requirement after deciding the products will be collected. It will try to collect these resources from local area. Hand tools and equipment will also be collected after deciding the products.

3.8.2.2. Training to enhance skills:

After collecting the material, group of selected women will be prepared. Training will be provided in those groups. This training will help them not only to enhance skills but also to use their skills in generating income.

3.8.2.2.1. Handicraft making skills:

As women will be selected from different areas. Training will be provided them in deciding space. Following steps will be used for training:

A: Group of women:

- Two groups of women will be made in area.
- Each group will contain of 18-18 respondents. Total 6 group will be prepared in start of training.
- After learning the basics of weaving, two groups will be merged in one group. By which one area will contain one group of women. Work will proceed in total three groups.

B: Methods of training program:

Training will be started by using different methods. Such as:

- **Demonstration method**- This method is based on 'learning by seeing'. This method is also used to train the women. For example, some products are **doormats, boxes, ornaments, mug cover plates** etc.
- **Lecture sessions**- Lecture sessions will organise to motivate and aware them. Requirement of these sessions will be depend at that time.

Audio-visual aids will be used to train the women. They can easily understand by using these aids. Products will be designs on paper after that it will be prepared. For example, some products are **purses, clutches,** etc.

3.8.2.2.2. Managerial skills:

Handicraft based training is not sufficient to support women. Managerial skills are also important to complete other activities. As researcher will observe managerial qualities in those women and make another group from each group. Distribution of other activities will be done.

- 2 or 3 women will be identified for financial activity.
- 2 or 3 women will be identified for collection of resources.
- 2or 3 women will be identified for marketing.

Interested men will be included for this procedure.

3.8.2.3. Production of products:

It is important to make products as per customer's choice. After analysing the market demand, products will be designed. Total four different types of products will be designed with selected any three crop residue. New, attractive and useful products will be made. Following steps will be followed:

- **Categorize the products**: Products will be divided into two categories. First is **Useful products** and second is **Decorative products**. Each residue will be used to make products in both categories. Before production it will be ensured that the products are innovative and not available in market before.
- **Quality of products**: Before production in large amount, quality of a sample product will be analysed. Quality will be checked by some locally available women. After checking the quality, production will be done.

3.8.2.4. Market acceptability:

Acceptability of handicraft products in market will be checked. It will help to know that how much useful and fruitful those products. To check market acceptability, following step will be followed-

- **Step 1: Costing of products**: Costing of products will depend on various factors like, raw material, time spend in making products (Labor charge), other charges (Transportation, if hired any expert) etc. After that the costing will be done. The component of costing will be:

Raw material + Labor charge + Other charges + Profit = Total cost

Table 3.2: Components of costing

- **Step 2: Deliver products:** Contact will be done in local markets and others as per suitability. The products will deliver to contacted areas.
- **Step 3: Check market acceptability of products:** It is important to check acceptability of products. It will be done by collecting feedback from customers and managers of shop. It will help to know the consumer's behaviour and sale of products.

- **Time period for intervention:** One intervention will be held post Rabi crop and other one will be held post Kharif crop.

- The training programme will run at least for one months after each crop.

- Total training time will be at least 2 to 3 months and may be increased time as per requirement of the study.

As in this phase women will be trained and market acceptability will be checked of the handicraft products. But it is also important to check the impact of intervention on women. For this, post intervention phase will design.

3.8.3. Post Intervention Phase

Post intervention phase will be used to analyse the impact of intervention on women.

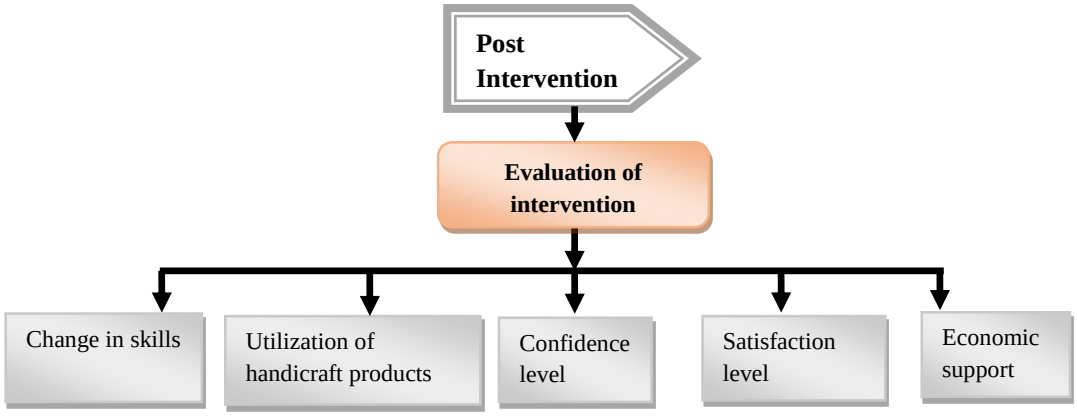


Fig.3.6: Post intervention phase of the study

3.8.3.1 Evaluation the impact of intervention:

The impact of intervention will be evaluated. Pre and post method will be used to estimate changes in skills of women after training. Schedule 3 will be used to analyse this factor. Other factors will be estimated by self-prepared schedule (Schedule no. 4). These factors are utilization of handicraft products by women in their home, confidence level of women regarding their work, satisfaction level regarding their work and generated income, sale of products and gain profits on products. It will help to analyse the economic support to those women. Comparing will be used to measure different factors as: comparing income between before and after intervention, comparing skills of women between before and after intervention.

3.8.4 Follow Up Phase

Follow up phase will be used to assess the sustainability. It will be assessed on the basis of several parameters.

- Production by using crop residue

- Sale in market

When the women will learn about produce products as per market demand and about marketing, after that within three to four months' visit will be done to selected areas.

3.9 Statistical Analysis

Following statistical techniques will be used for present study:

- **Arithmetic mean**: In general language arithmetic mean is same as the average of data. It is the sum of score divided by total number of respondents.

$$\textbf{A.M}= \frac{\sum X}{n}$$

A.M. = Arithmetic mean, Σ X= Sum of scores, n= number of respondent

Use: To assess the responses of various factors of present study.

- **Percentage:** A percentage is a number or ratio expressed as a fraction of 100. It is denoted by using the percent sign, "%". The frequency of a particular cell will be multiply by 100 and divide by total number of respondent in that particular category to which they belong.

$$P = \frac{n \times 100}{N}$$

P= Percentage, n= Obtained score, N= Total or maximum score

Uses: To study the distribution of the sample.

- **Standard deviation:** It measures the spread of the data about the mean value. It is useful in comparing sets of data which may have the same mean but a different range. It is usually denoted byletter σ (small sigma) of Greek alphabet and is a measure of dispersion.

$$\textbf{S.D.} = \frac{\sqrt{\sum(x-\mu)2}}{n}$$

S.D. = Standard Deviation, ∑= sum of, x= value in the data set, μ= mean of data set, N= total number of observation

Use: To use in computing different statistical quantities.

- **Paired 't' test:** The paired t-test compares the mean difference of the values to zero. It depends on the mean difference, the variability of the differences and the number of data.

Use: To assess the impact of intervention.

- Any other statistical techniques will be applied as per according to data.

3.10 Delimitation of the study

- This study will be conducted in Agra District.
- This study will be conducted on limited area because seasonal crops are available for a limited time period.
- The sample size for the study will be 108 women.
- Time consuming in intervention will be depended on different crops produced in different seasons.

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